

Developing a Regional Decision Support System for the Houston-Galveston Region

Houston-Galveston Area Council, Texas, Total Cost: \$200,000, FHWA Share: \$100,000

*Period of Performance: 27 months, Dates: March 13, 2008 – June 14, 2010**

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Project Goals

The Houston Galveston Area Council (H-GAC) *Eco-Logical* project's goal is to create a GIS model that will identify environmental resources and potential mitigation areas. The model will serve as a regional decision support system that calls out priorities for protection and mitigation.

Project Activities

H-GAC has completed the resource mapping component of its project and has made significant progress toward completing a resource valuation tool. To assure that the valuation tool will have the greatest ongoing relevance, H-GAC designed the tool to automatically incorporate the most current data available.

Key Accomplishments

H-GAC has begun work on its final report and plans to have all deliverables completed by June 2010 (based upon an agreement extension).

Challenges

H-GAC faced a major challenge in determining how to best design the GIS tool for its regional decision support system; H-GAC learned that the agencies in its advisory group had conflicting definitions of “level of ecological service.” To resolve this issue, H-GAC guided the advisory committee, composed of resource, planning, and transportation agencies, to reach a consensus on this definition by selecting eight quantifiable metrics for the valuation tool.¹

Eco-Service Rating	High=3	Med=2	Low=1	Total	Average
Maintain & Improve Water Quality	12	2	0	40	2.86
Sustain Biodiversity	12	2	0	40	2.86
Regulate Timing & Distribution of Water Flows	10	4	0	38	2.71
Flood Protection	10	3	1	37	2.64
Improve Air Quality	6	7	1	33	2.36
Cycle & Store Nutrients	5	8	1	32	2.29
Provide Quality of Life Benefits	6	6	2	32	2.29
Control Erosion	5	7	2	31	2.21
Reduce Storm Surge Impact	5	7	2	31	2.21
Provide Recreation	6	5	3	31	2.21
Reduce GHG	4	7	3	29	2.07
Moderate Temperature	4	6	4	28	2.00
Provide Food Production	3	6	5	26	1.86

Figure: Eco-Service ratings devised in an advisory group meeting.

H-GAC identified a second challenge related to the ongoing engagement of its advisory committee. The project team found that the aerial imagery mapping component of the project and model calibration took more time than H-GAC expected, leading to a six-month period in which H-GAC had no new products to engage the advisory committee. The H-GAC project team worried that this may have contributed to a sense of disconnect among committee members. A related concern is that the FHWA Texas Division office and TxDOT were initially unengaged in the project. To alleviate this challenge, H-GAC established liaisons with FHWA and TxDOT, and the project team hopes to report on the outcome of these new liaisons in the next fiscal year.

Future Steps

In 2010, the H-GAC project team plans to conduct outreach within H-GAC and among resource agency partners to incorporate the tool into regional plans. As one of the first major efforts in the Houston-Galveston Area to bridge transportation and environmental issues, this *Eco-Logical* grant project plans to include environmental groups in transportation planning decisions through procedural changes in the MPO side of H-GAC, such as establishing a subcommittee within the MPO to focus on environmental issues in transportation planning.²

¹ The eight quantifiable metrics are: size, shape, regional ecotype scarcity, watershed ecotype scarcity, adjacency-isolation, fragmentation, presence of threatened species, and diversity. A ninth qualitative metric is quality of habitat.

² HGAC serves as both the COG and the MPO for the region. HGAC's MPO-side carries out the Federally mandated transportation planning process.